USDA Foreign Agricultural Service

Iran: Crop Progress Report

MY 2009/10

May Summary **May 26, 2009**

(1) Iran's wheat and barley production outlook in MY 2009/10 is currently forecast to increase over last year's severely drought-reduced harvest, but is expected to remain below the 5-year average. This projection is supported by season-to-date precipitation conditions and satellite-derived (MODIS NDVI) vegetation index time series data. At the end of May 2009, seasonal precipitation and vegetation index time series data indicate two distinctly different grain production outlooks in separate regions of the country. Adequate rainfall and ideal temperatures across the majority of northwest Iran, as well as along the Caspian Sea and in the northeast, have resulted in normal to better than normal grain production potential. The provinces experiencing favorable production prospects account for nearly 70% of national wheat and barley production in Iran. In contrast, provinces in the southwest along the Persian Gulf received minimal precipitation throughout the winter grains planting and growing seasons, resulting in very poor production potential. The second consecutive year of drought in these regions combined with poor winter snow accumulation have resulted in a significant reduction in reservoir levels and irrigation supplies and have crippled both rainfed and irrigated crop production potential throughout the region. Cumulatively these drought-affected provinces account for the remaining 30% of Iranian winter grains production and are expected to produce at levels worse than the drought ravaged MY 2008/09 season.

(2) Table 1 presents the national barley and wheat production forecasts for Iran in MY 2009/10 compared against the previous 5 years. Tables 2 and 3 provide the provincial level estimates of production for barley and wheat that were used to generate national totals. Please note the provincial numbers are not official USDA statistics.

(3) Season-to-date rainfall has been much improved compared to last year over the majority of the country, benefitting both rainfed and irrigated winter grain crops. However, much below normal rainfall conditions have plagued key grains regions for the second year, particularly in south and central regions of the country (Figure 1). Currently 41% of winter grains area in Iran has received below normal precipitation. Many of these regions (>70%) are at least partially irrigated and have potential to produce some winter grains, though total production is expected to be well-below normal. Satellite imagery provides some indication that the sustained drought situation is taking a toll on reservoir water levels in Fars province and that water levels continue to drop. Recent rain-bearing weather systems have favored the central provinces of the country which account for only a very small portion of total grains production (Figure 2). Many of the grain growing areas in Iran have reached the date at which crop development peaks and have begun developing flowers and filling grains. While recent precipitation has been important to crop development, the period when it was most beneficial to crop yield has now come to an end.

(4) A comparison of current vegetative crop conditions to the five year average using MODIS NDVI vegetation index data in figure 4 shows a return to normal levels over the previous year's drought-affected crop (MY 2008/09) in both the northwest and eastern regions where rainfall has been adequate overall. Below normal vegetation health and abundance is also evident in the central provinces, most specifically Bushehr and Fars, where rainfall has been well below normal and drought conditions have been prevalent for the second year.

(5) MODIS NDVI data specific to the major rainfed grains provinces in the northwest and northeast are highlighted in figure 5 and figure 6. The northwest provinces of Kermanshah, Lorestan, Markazi, Hamadan and Kurdistan historically account for 22% of total national wheat production and 22% of national barley production. By early May these important rainfed provinces were showing well above average vegetative development. Traditionally these areas reach peak vegetative growth in late May and early June. Should adequate precipitation continue, crop production potential in these provinces can improve further. In the northeast provinces of Golestan, North Khorasan and Razavi Khorasan, which historically account for 20% of national wheat and 25% of barley, NDVI data indicate crop development is near the five year average, and well above the MY 2008/09 drought year. Satellite imagery over regions in the northwest and northeast further substantiate this impression by showing vigorous crop development.

(6) MODIS NDVI data comparisons in the major irrigated production provinces of Khuzestan and Fars are highlighted in figures 9 and 10. Both provinces have been experiencing continued drought and thus show similar vegetation responses to last year's drought ravaged crop (My 2008/09). The majority of grain production in Khuzestan and Fars is irrigated, and satellite data indicates crop area has decreased due to depleted water supplies. As a result, grain production in these regions is expected to be even worse than the previous year. Recent AWiFS satellite imagery shows that reservoir levels are dropping rapidly, as even within a month's time the decline in reservoir surface area and depth is noticeable. These rapidly declining reservoir levels are expected to be a continuing problem for the regions agriculture and will have serious implications concerning the prospects of irrigated summer crops prominent in these regions. The climate of these provinces near the Persian Gulf results in winter grains reaching their peak crop development by late March, with harvest activities in April and May. As such, any recent precipitation will have been of little direct use to the winter grains. Khuzestan and Fars historically produce 23% of national wheat and 10% of barley.

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Commodity	Attribute	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	**2009/2010 (Projected)**
Barley	Area Harvested (1000 HA)	1600	1659	1700	1700	1300	**1407**
	Production (1000 MT)	2940	2857	3000	3000	2000	**2621**
	Yield (MT/HA)	1.84	1.72	1.76	1.76	1.54	**1.86**
Wheat	Area Harvested (1000 HA)	6605	6951	6500	6900	5850	**5929**
	Production (1000 MT)	14568	14308	14500	15000	10000	**12004**
	Yield (MT/HA)	2.21	2.06	2.23	2.17	1.71	**2.02**

Table 1. Projected national barley and wheat statistics for MY 2009/10 compared against previous years.

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Iran: Historical Wheat Statistics

	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Northwest	**Azarbayejan Sharghi**										
	Area (Mha)	0.42	0.41	0.43	0.43	0.45	0.44	-	0.43	0.43	-1.16%
	Yield (MT/ha)	1.03	1.17	1.50	1.59	1.63	1.67	-	1.70	1.43	18.63%
	Production (MMT)	0.43	0.48	0.64	0.69	0.74	0.74	-	0.73	0.62	17.25%
	Azarbayejan Gharbi										
	Area	0.30	0.31	0.33	0.33	0.34	0.40	-	0.33	0.34	-3.00%
	Yield	1.33	1.47	1.92	2.14	2.30	1.75	-	2.35	1.82	29.25%
	Production	0.40	0.45	0.63	0.70	0.77	0.70	-	0.78	0.62	25.37%
	Ardabil										
	Area	0.27	0.29	0.32	0.35	0.36	0.36	-	0.31	0.34	-6.40%
	Yield	1.34	1.49	1.70	1.88	1.70	1.68	-	1.85	1.63	13.28%
	Production	0.36	0.43	0.54	0.65	0.61	0.61	-	0.58	0.55	6.04%
	Gilan										
	Area	0.02	0.02	0.02	0.01	0.02	0.01	-	0.01	0.02	-5.17%
	Yield	0.68	0.91	0.98	1.06	1.02	1.04	-	1.05	0.95	10.86%
	Production	0.01	0.02	0.01	0.02	0.02	0.01	-	0.02	0.01	5.13%
	Zanjan										
	Area	0.32	0.29	0.41	0.35	0.31	0.30	-	0.32	0.33	-4.41%
	Yield	0.64	0.63	0.61	1.09	1.22	1.21	-	1.22	0.90	35.79%
	Production	0.20	0.19	0.25	0.38	0.38	0.37	-	0.39	0.30	29.80%
	Kordestan										
	Area	0.42	0.40	0.42	0.43	0.47	0.52	-	0.48	0.45	7.03%
	Yield	0.73	0.76	0.94	1.29	1.48	1.20	-	1.40	1.07	31.17%
	Production	0.30	0.30	0.40	0.55	0.69	0.63	-	0.67	0.48	40.40%
	Ghazvin										
	Area	0.10	0.12	0.12	0.14	0.13	0.17	-	0.16	0.13	17.46%
	Yield	1.93	2.20	2.35	2.15	2.55	2.13	-	2.45	2.22	10.53%
	Production	0.20	0.26	0.27	0.29	0.33	0.35	-	0.39	0.30	29.84%
	Markazi										
	Area	0.18	0.20	0.21	0.21	0.23	0.22	-	0.21	0.21	-3.00%
	Yield	1.10	1.57	1.63	1.81	2.11	1.69	-	1.90	1.65	15.11%
	Production	0.19	0.32	0.34	0.38	0.48	0.37	-	0.39	0.35	11.66%
	Hamedan										
	Area	0.38	0.37	0.40	0.40	0.44	0.44	-	0.41	0.41	0.92%
	Yield	1.03	1.54	1.68	1.73	2.05	1.49	-	1.95	1.59	22.66%
	Production	0.39	0.58	0.67	0.70	0.89	0.66	-	0.81	0.65	23.80%
	Kermanshah										
	Area	0.29	0.34	0.39	0.39	0.43	0.42	-	0.42	0.39	5.38%
	Yield	1.00	1.49	2.07	2.05	2.05	2.11	-	2.10	1.79	17.01%
	Production	0.29	0.51	0.80	0.80	0.89	0.89	-	0.87	0.71	23.30%
	Ilam										
	Area	0.09	0.11	0.12	0.10	0.12	0.13	-	0.11	0.12	-4.77%
	Yield	1.05	1.60	1.93	1.35	1.59	1.81	-	1.20	1.55	-22.79%
	Production	0.09	0.18	0.24	0.14	0.19	0.24	-	0.13	0.18	-26.48%
	Lorestan										
	Area	0.26	0.25	0.30	0.31	0.34	0.34	-	0.24	0.31	-22.66%
	Yield	1.38	1.41	2.00	1.75	1.62	1.43	-	1.75	1.60	9.63%
	Production	0.36	0.35	0.59	0.54	0.56	0.48	-	0.42	0.49	-15.21%
	Khozestan										
	Area	0.36	0.48	0.58	0.42	0.50	0.60	-	0.40	0.52	-22.05%
	Yield	2.54	2.44	2.47	2.56	2.46	2.48	-	1.85	2.49	-25.74%
	Production	0.91	1.18	1.43	1.08	1.22	1.49	-	0.75	1.26	-42.12%

Iran: Historical Wheat Statistics Continued...											
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Central	Golestan										
	Area	0.31	0.70	0.36	0.37	0.39	0.37	-	0.37	0.44	-14.25%
	Yield	2.68	2.10	2.44	3.06	2.85	2.76	-	3.00	2.65	13.23%
	Production	0.83	1.47	0.87	1.13	1.11	1.01	-	1.12	1.16	-2.90%
	Mazandaran										
	Area	0.05	0.07	0.06	0.06	0.07	0.06	-	0.12	0.06	89.59%
	Yield	1.32	2.12	2.43	2.19	2.43	1.35	-	2.50	1.97	26.79%
	Production	0.07	0.14	0.13	0.14	0.16	0.08	-	0.30	0.12	140.39%
	Tehran										
	Area	0.05	0.05	0.04	0.05	0.06	0.07	-	0.06	0.05	6.38%
	Yield	3.22	3.99	4.27	4.80	4.66	4.79	-	4.65	4.29	8.42%
	Production	0.16	0.19	0.19	0.22	0.26	0.32	-	0.26	0.23	15.35%
	Ghom										
	Area	0.02	0.01	0.02	0.01	0.01	0.01	-	0.02	0.01	76.21%
	Yield	2.60	3.07	3.75	4.10	4.84	3.74	-	4.28	3.68	16.11%
	Production	0.05	0.04	0.06	0.06	0.07	0.05	-	0.10	0.05	104.59%
	Semnan										
	Area	0.05	0.04	0.04	0.04	0.05	0.04	-	0.04	0.04	-2.36%
	Yield	2.66	2.68	3.16	3.27	3.21	3.28	-	3.21	3.04	5.33%
	Production	0.12	0.10	0.13	0.14	0.15	0.12	-	0.13	0.12	2.84%
	Esfahan										
	Area	0.10	0.08	0.10	0.12	0.13	0.13	-	0.11	0.11	-1.93%
	Yield	2.82	2.66	3.26	3.71	4.20	3.91	-	2.75	3.43	-19.77%
	Production	0.29	0.21	0.34	0.46	0.54	0.52	-	0.31	0.39	-21.32%
	Yazd										
	Area	0.02	0.02	0.03	0.03	0.03	0.03	-	0.03	0.03	3.75%
	Yield	2.90	3.02	3.31	3.62	3.85	3.77	-	3.26	3.41	-4.33%
	Production	0.07	0.07	0.09	0.10	0.10	0.10	-	0.09	0.09	-0.74%
	CharMahal & Bakhtiari										
	Area	0.07	0.08	0.07	0.08	0.08	0.07	-	0.08	0.08	-0.60%
	Yield	1.43	1.80	2.54	2.29	2.27	2.20	-	2.25	2.09	7.68%
	Production	0.10	0.15	0.18	0.19	0.19	0.15	-	0.17	0.16	7.02%
	Kohkiloyeh & Boyrahmad										
	Area	0.08	0.09	0.13	0.16	0.12	0.13	-	0.09	0.12	-26.35%
	Yield	1.31	1.54	2.16	1.69	1.54	1.41	-	1.44	1.61	-10.70%
	Production	0.10	0.14	0.28	0.26	0.18	0.18	-	0.13	0.20	-34.23%
	Boshehr										
	Area	0.02	0.12	0.17	0.17	0.17	0.16	-	0.16	0.16	4.48%
	Yield	1.31	0.38	0.68	0.35	0.52	0.84	-	0.65	0.68	-3.65%
	Production	0.02	0.05	0.11	0.06	0.09	0.13	-	0.11	0.11	0.66%
	Fars										
	Area	0.40	0.45	0.44	0.60	0.54	0.59	-	0.40	0.52	-23.58%
	Yield	3.00	2.92	3.85	3.10	3.67	3.51	-	2.50	3.34	-25.23%
	Production	1.19	1.32	1.70	1.85	1.98	2.07	-	1.00	1.75	-42.86%
East	khorasan razavi										
	Area	0.42	0.47	0.64	0.70	0.68	0.53	-	0.47	0.60	-22.26%
	Yield	1.62	1.70	1.97	2.17	2.19	2.12	-	2.19	1.96	11.52%
	Production	0.68	0.81	1.25	1.51	1.48	1.12	-	1.02	1.18	-13.31%
	Kerman										
	Area	0.08	0.08	0.08	0.09	0.11	0.11	-	0.08	0.09	-11.35%
	Yield	2.25	2.35	2.57	2.68	3.09	3.26	-	2.48	2.70	-8.05%
	Production	0.17	0.18	0.20	0.24	0.33	0.36	-	0.20	0.25	-18.49%
	Sistan & Baloshesta										
	Area	0.04	0.03	0.03	0.03	0.05	0.06	-	0.05	0.04	23.58%
	Yield	2.05	2.27	1.92	2.33	2.18	2.08	-	2.10	2.14	-1.67%
	Production	0.07	0.07	0.06	0.08	0.10	0.12	-	0.10	0.08	21.51%
	Hormozgan										
	Area	0.01	0.01	0.01	0.01	0.01	0.01	-	0.01	0.01	6.67%
	Yield	2.17	2.92	3.26	4.17	4.21	4.01	-	3.22	3.46	-6.84%
	Production	0.02	0.03	0.04	0.05	0.05	0.06	-	0.04	0.04	-0.63%
	Total										
	Area	5.10	5.90	6.24	6.41	6.61	6.72	-	5.93	6.38	-7.01%
	Yield	1.59	1.73	1.99	2.10	2.21	2.07		2.02	2.03	-0.07%
	Production (MMT)	8.09	10.20	12.45	13.44	14.57	13.93	-	12.00	12.92	-7.08%

Table 2. Provincial level wheat production estimates for MY 2009/10 compared against previous years.

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Iran: Historical Barley Statistics											
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Northwest	**Azarbayejan Sharghi**										
	Area (Mha)	0.08	0.08	0.09	0.08	0.08	0.08	-	0.08	0.082	-0.68%
	Yield (MT/ha)	1.01	1.17	1.41	1.48	1.39	1.46	-	1.28	1.318	-3.19%
	Production (MMT)	0.08	0.09	0.13	0.12	0.11	0.12	-	0.10	0.108	-3.85%
	Azarbayejan Gharbi										
	Area	0.04	0.04	0.05	0.05	0.05	0.05	-	0.05	0.048	-5.46%
	Yield	1.61	1.49	1.71	1.74	1.80	1.48	-	1.60	1.641	-2.40%
	Production	0.06	0.06	0.08	0.08	0.10	0.08	-	0.07	0.078	-7.73%
	Ardabil										
	Area	0.09	0.09	0.09	0.07	0.10	0.10	-	0.09	0.089	-3.07%
	Yield	1.27	1.28	1.60	1.57	1.30	1.39	-	1.41	1.400	0.72%
	Production	0.11	0.12	0.14	0.11	0.13	0.13	-	0.12	0.124	-2.36%
	Gilan										
	Area	0.01	0.01	0.01	0.01	0.01	0.01	-	0.01	0.008	-7.38%
	Yield	0.70	1.01	0.99	1.20	1.15	1.11	-	1.11	1.028	7.96%
	Production	0.01	0.01	0.01	0.01	0.01	0.01	-	0.01	0.008	-0.01%
	Zanjan										
	Area	0.03	0.04	0.11	0.06	0.06	0.05	-	0.06	0.062	-11.52%
	Yield	0.85	0.76	0.50	1.00	1.09	1.22	-	0.98	0.905	8.60%
	Production	0.03	0.03	0.05	0.06	0.06	0.06	-	0.05	0.056	-3.91%
	Kordestan										
	Area	0.03	0.04	0.04	0.04	0.04	0.03	-	0.04	0.038	4.02%
	Yield	0.91	0.87	1.07	1.43	1.44	1.35	-	1.16	1.179	-1.76%
	Production	0.03	0.04	0.05	0.05	0.05	0.05	-	0.05	0.045	2.19%
	Ghazvin										
	Area	0.02	0.03	0.04	0.04	0.03	0.03	-	0.04	0.032	17.53%
	Yield	1.70	2.36	2.23	2.22	2.45	2.28	-	2.51	2.206	13.80%
	Production	0.04	0.06	0.09	0.08	0.08	0.06	-	0.09	0.071	33.75%
	Markazi										
	Area	0.03	0.05	0.04	0.04	0.04	0.04	-	0.04	0.040	-3.02%
	Yield	2.37	3.13	3.10	3.07	3.53	3.16	-	3.75	3.060	22.54%
	Production	0.08	0.14	0.12	0.13	0.14	0.11	-	0.15	0.124	18.85%
	Hamedan										
	Area	0.05	0.06	0.06	0.06	0.07	0.07	-	0.06	0.062	-0.53%
	Yield	1.64	2.35	2.51	2.69	2.93	2.26	-	2.86	2.396	19.33%
	Production	0.09	0.14	0.14	0.16	0.20	0.15	-	0.18	0.148	18.69%
	Kermanshah										
	Area	0.08	0.10	0.10	0.13	0.10	0.11	-	0.11	0.109	4.94%
	Yield	0.72	1.48	1.78	1.56	1.51	1.52	-	1.84	1.428	28.98%
	Production	0.06	0.15	0.18	0.20	0.15	0.17	-	0.21	0.156	35.35%
	Ilam										
	Area	0.03	0.05	0.06	0.05	0.05	0.06	-	0.05	0.055	-6.82%
	Yield	0.50	1.03	1.26	0.78	0.66	1.03	-	0.58	0.875	-34.07%
	Production	0.02	0.05	0.08	0.04	0.03	0.06	-	0.03	0.048	-38.56%
	Lorestan										
	Area	0.15	0.18	0.15	0.12	0.14	0.18	-	0.12	0.152	-21.31%
	Yield	0.93	1.24	1.61	1.06	1.05	1.12	-	1.19	1.169	1.97%
	Production	0.14	0.22	0.24	0.13	0.14	0.20	-	0.14	0.178	-19.76%
	Khozestan										
	Area	0.03	0.10	0.11	0.08	0.09	0.11	-	0.07	0.098	-26.95%
	Yield	1.08	0.91	1.23	1.06	0.83	0.97	-	0.75	1.014	-26.01%
	Production	0.04	0.10	0.14	0.08	0.08	0.10	-	0.05	0.100	-45.95%

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	Iran: Historical Barley Statistics Continued...									
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Central	Golestan										
	Area	0.07	0.06	0.06	0.05	0.07	0.06	-	0.06	0.060	-6.32%
	Yield	0.98	1.07	1.02	2.06	1.77	1.48	-	1.76	1.396	26.36%
	Production	0.07	0.06	0.06	0.10	0.12	0.10	-	0.10	0.084	18.37%
	Mazandaran										
	Area	0.02	0.03	0.02	0.03	0.03	0.02	-	0.05	0.026	93.94%
	Yield	0.70	1.61	1.17	1.85	1.82	0.72	-	1.75	1.312	33.26%
	Production	0.02	0.05	0.03	0.05	0.06	0.01	-	0.09	0.034	158.45%
	Tehran										
	Area	0.03	0.03	0.04	0.04	0.04	0.04	-	0.04	0.040	3.67%
	Yield	2.89	3.50	3.78	3.96	4.01	3.69	-	4.24	3.637	16.67%
	Production	0.09	0.12	0.16	0.15	0.18	0.15	-	0.17	0.144	20.94%
	Ghom										
	Area	0.02	0.02	0.02	0.02	0.02	0.02	-	0.04	0.022	63.65%
	Yield	2.55	2.97	3.20	3.47	3.72	3.47	-	3.62	3.232	11.92%
	Production	0.05	0.07	0.07	0.08	0.07	0.07	-	0.13	0.070	83.38%
	Semnan										
	Area	0.01	0.02	0.02	0.02	0.02	0.01	-	0.02	0.017	-6.34%
	Yield	2.38	2.49	2.87	3.15	3.22	2.92	-	3.05	2.838	7.46%
	Production	0.04	0.04	0.05	0.06	0.05	0.04	-	0.05	0.047	0.65%
	Esfahan										
	Area	0.04	0.04	0.05	0.05	0.05	0.05	-	0.05	0.048	-1.91%
	Yield	3.14	3.24	3.56	3.49	3.78	3.41	-	3.20	3.436	-6.87%
	Production	0.13	0.11	0.17	0.18	0.19	0.19	-	0.15	0.166	-8.66%
	Yazd										
	Area	0.00	0.00	0.01	0.01	0.01	0.01	-	0.01	0.006	0.24%
	Yield	2.64	2.61	2.85	2.97	3.12	3.05	-	2.80	2.874	-2.48%
	Production	0.01	0.01	0.02	0.02	0.02	0.02	-	0.02	0.017	-2.24%
	CharMahal & Bakhtiari										
	Area	0.02	0.02	0.03	0.03	0.02	0.02	-	0.02	0.024	1.82%
	Yield	1.02	1.64	2.13	1.83	1.76	1.60	-	2.13	1.665	27.92%
	Production	0.03	0.04	0.06	0.05	0.04	0.03	-	0.05	0.039	30.25%
	Kohkiloyeh & Boyrahmad										
	Area	0.04	0.05	0.03	0.04	0.05	0.04	-	0.03	0.045	-24.33%
	Yield	0.71	1.17	1.78	1.50	1.05	1.07	-	0.80	1.212	-34.01%
	Production	0.03	0.06	0.06	0.07	0.05	0.04	-	0.03	0.054	-50.06%
	Boshehr										
	Area	0.00	0.02	0.03	0.02	0.03	0.03	-	0.03	0.026	3.05%
	Yield	0.31	0.28	0.67	0.28	0.48	0.57	-	0.50	0.433	15.56%
	Production	0.00	0.01	0.02	0.01	0.01	0.02	-	0.01	0.011	19.08%
	Fars										
	Area	0.05	0.10	0.14	0.12	0.13	0.14	-	0.05	0.125	-59.99%
	Yield	1.88	1.45	1.89	1.80	1.50	1.42	-	1.10	1.657	-33.63%
	Production	0.10	0.15	0.26	0.21	0.19	0.20	-	0.06	0.207	-73.45%
East	khoraasan razavi										
	Area	0.17	0.21	0.25	0.25	0.24	0.19	-	0.18	0.228	-21.62%
	Yield	1.91	2.24	2.53	2.57	2.43	2.47	-	2.54	2.356	7.79%
	Production	0.32	0.47	0.64	0.65	0.59	0.46	-	0.45	0.538	-15.51%
	Kerman										
	Area	0.02	0.01	0.02	0.01	0.03	0.03	-	0.02	0.020	-11.42%
	Yield	1.62	1.99	2.24	1.94	2.19	2.29	-	1.93	2.046	-5.73%
	Production	0.03	0.02	0.03	0.03	0.06	0.07	-	0.03	0.041	-16.49%
	Sistan & Baloshesta										
	Area	0.00	0.00	0.01	0.01	0.01	0.02	-	0.01	0.010	12.38%
	Yield	1.47	1.74	1.42	1.67	1.71	1.40	-	1.49	1.570	-5.25%
	Production	0.01	0.01	0.01	0.01	0.01	0.03	-	0.02	0.016	6.47%
	Hormozgan										
	Area	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.002	10.86%
	Yield	1.17	1.59	1.14	0.95	1.22	1.22	-	1.24	1.214	1.96%
	Production	0.00	0.00	0.00	0.00	0.00	0.01	-	0.00	0.002	13.03%
	Total										
	Area	1.19	1.49	1.67	1.51	1.60	1.60	-	1.41	1.573	-10.59%
	Yield	1.41	1.63	1.85	1.93	1.84	1.71	-	1.86	1.791	4.01%
	Production (MMT)	1.69	2.42	3.08	2.91	2.94	2.73	-	2.62	2.818	-7.01%

Table 3. Provincial level Barley production estimates for MY 2009/10 compared against previous years.

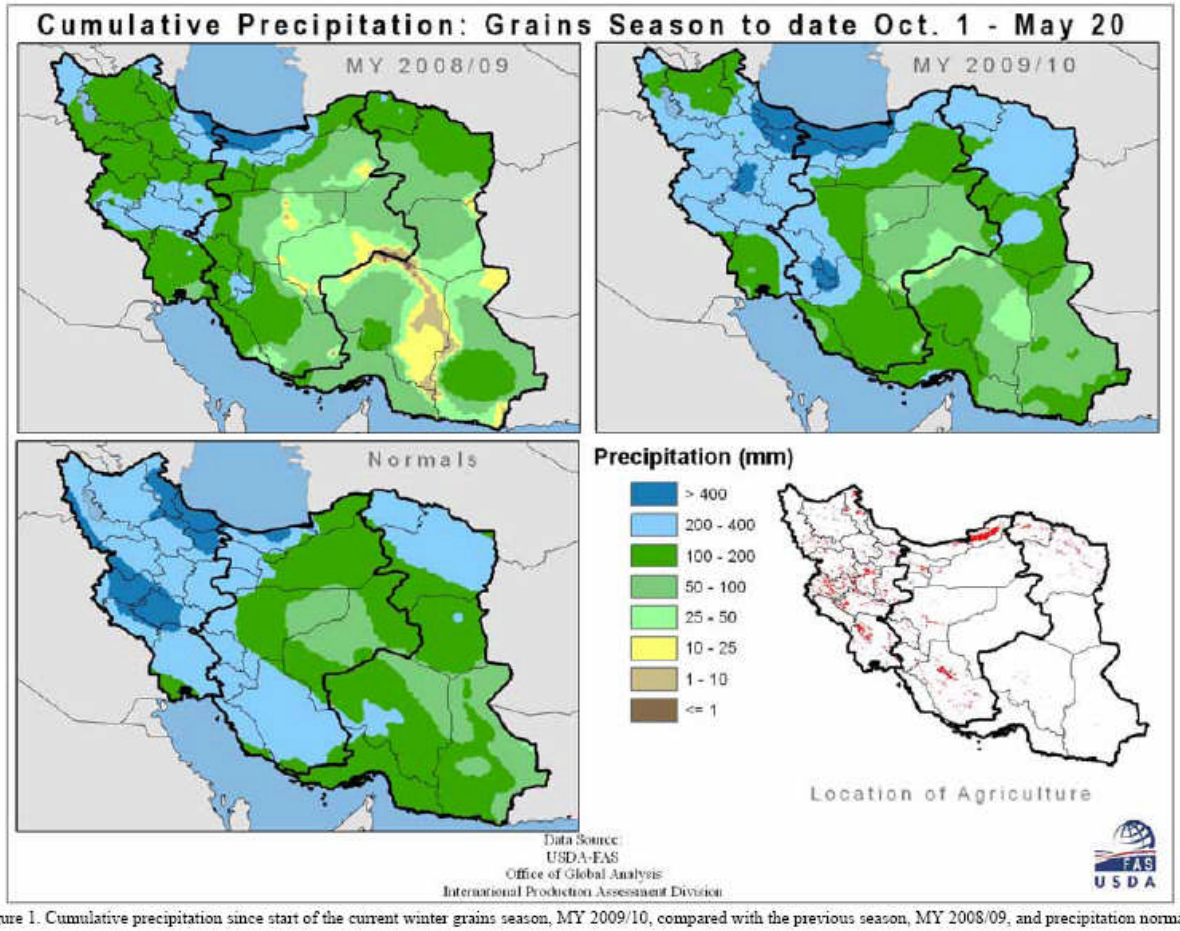


Figure 1. Cumulative precipitation since start of the current winter grains season, MY 2009/10, compared with the previous season, MY 2008/09, and precipitation normals.

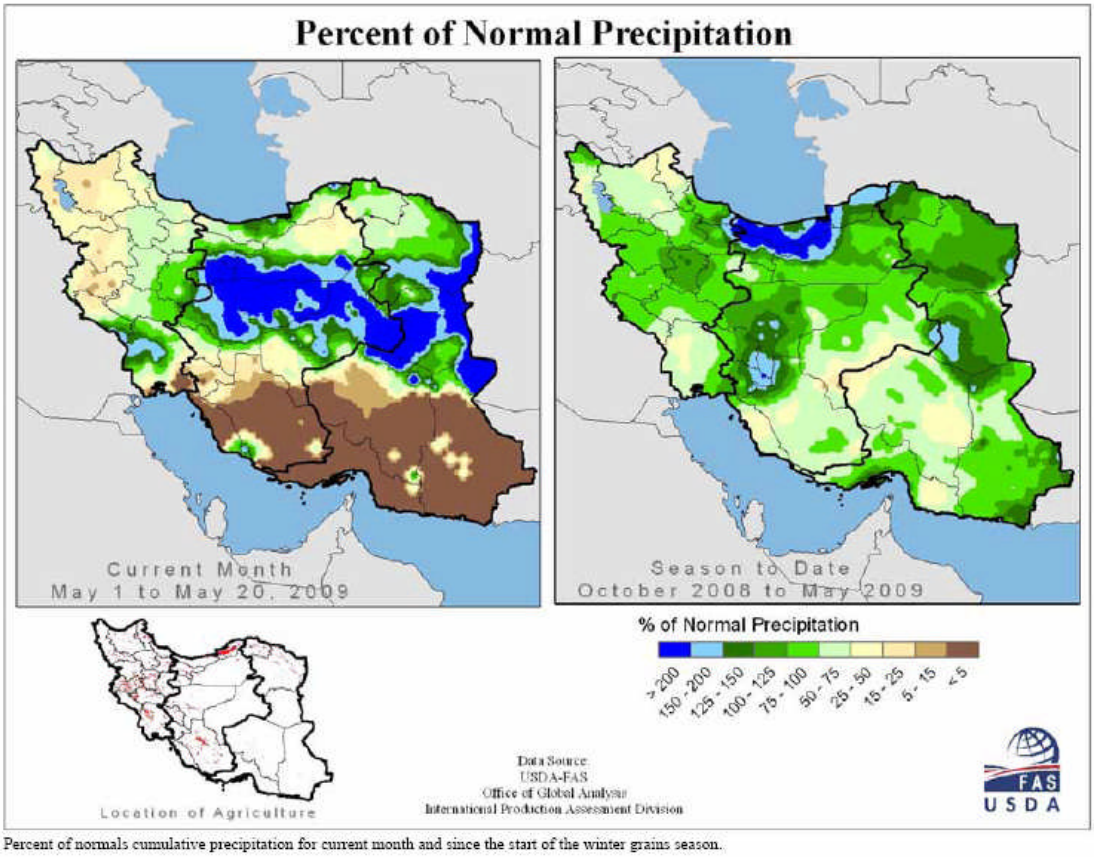


Figure 2. Percent of normals cumulative precipitation for current month and since the start of the winter grains season.

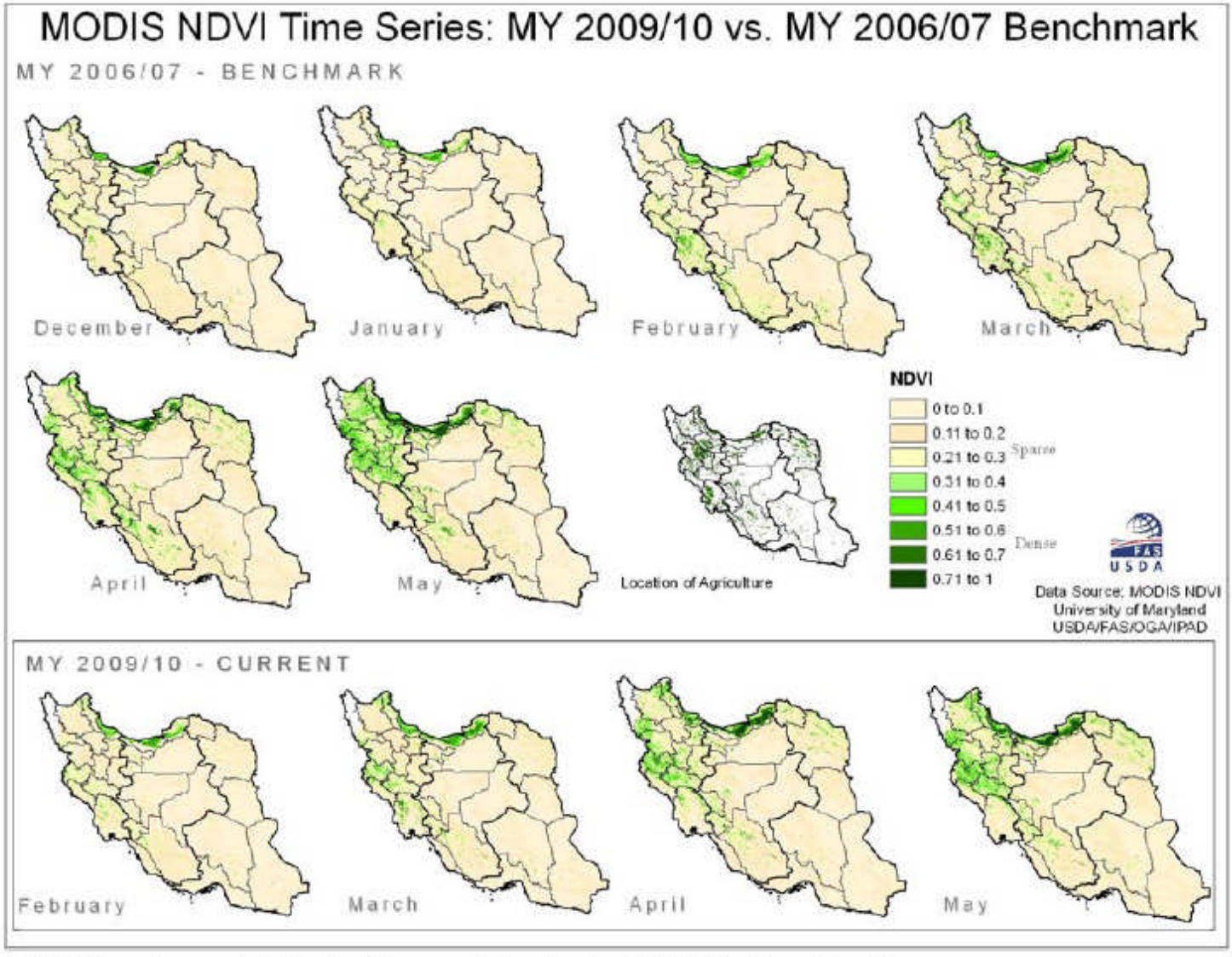


Figure 3. NDVI time series over agricultural regions in Iran, comparing benchmark year MY 2006/07 with current vegetation progress.

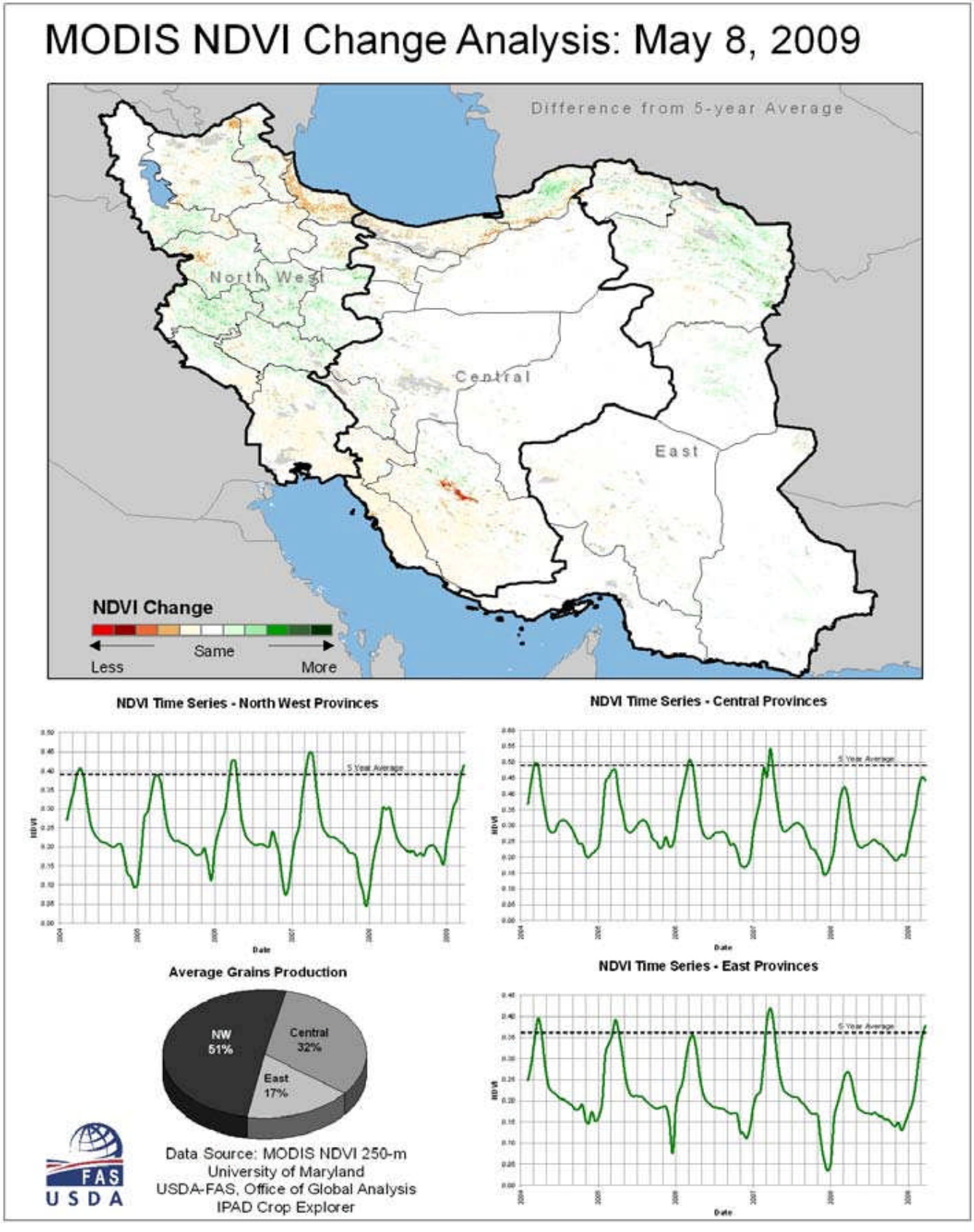


Figure 4. MODIS NDVI comparing vegetation abundance over agricultural lands to the five year average. NDVI profile graphs show slight increase in vegetation in the Northwest and East regions, and vegetation decrease in the Central region.

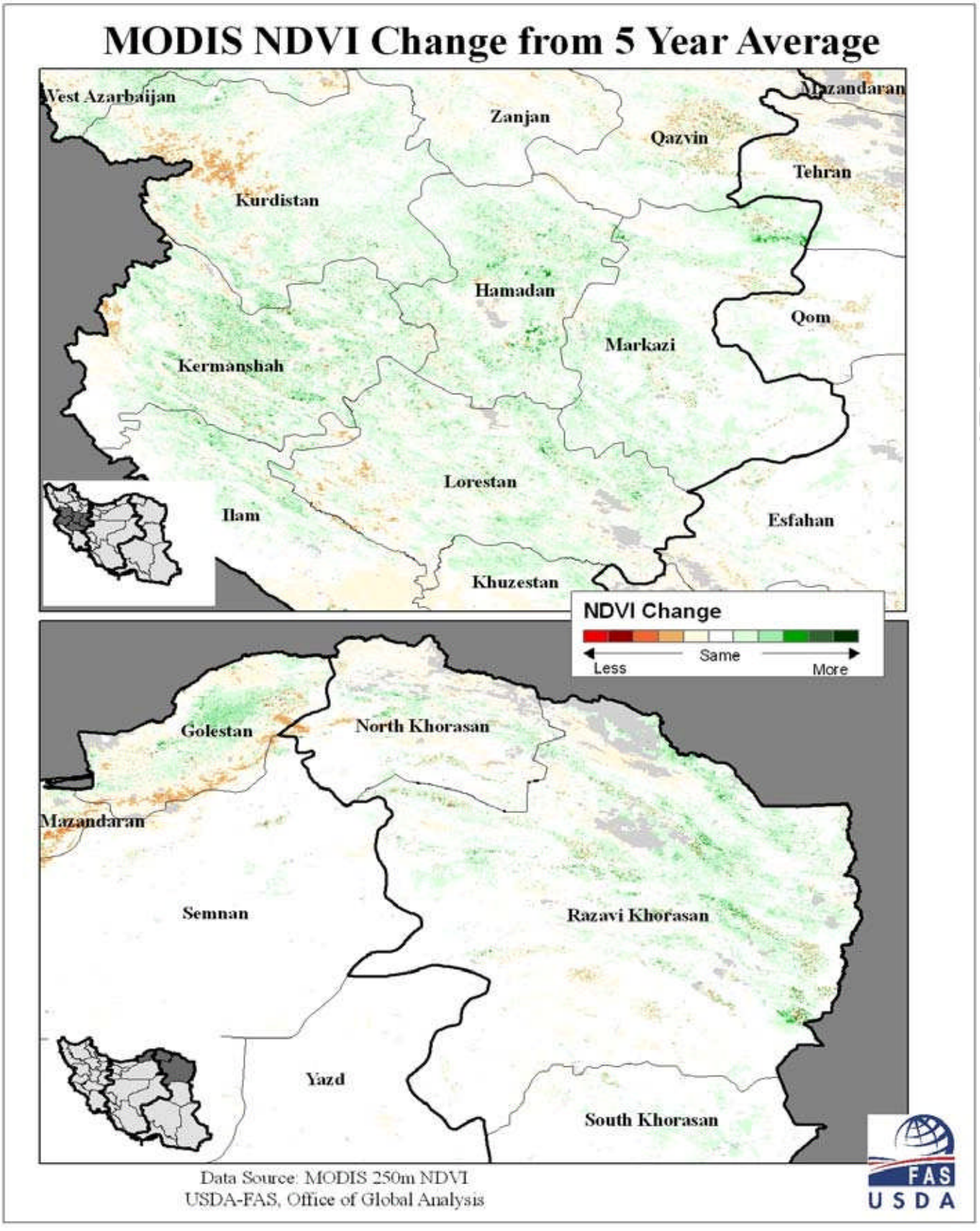
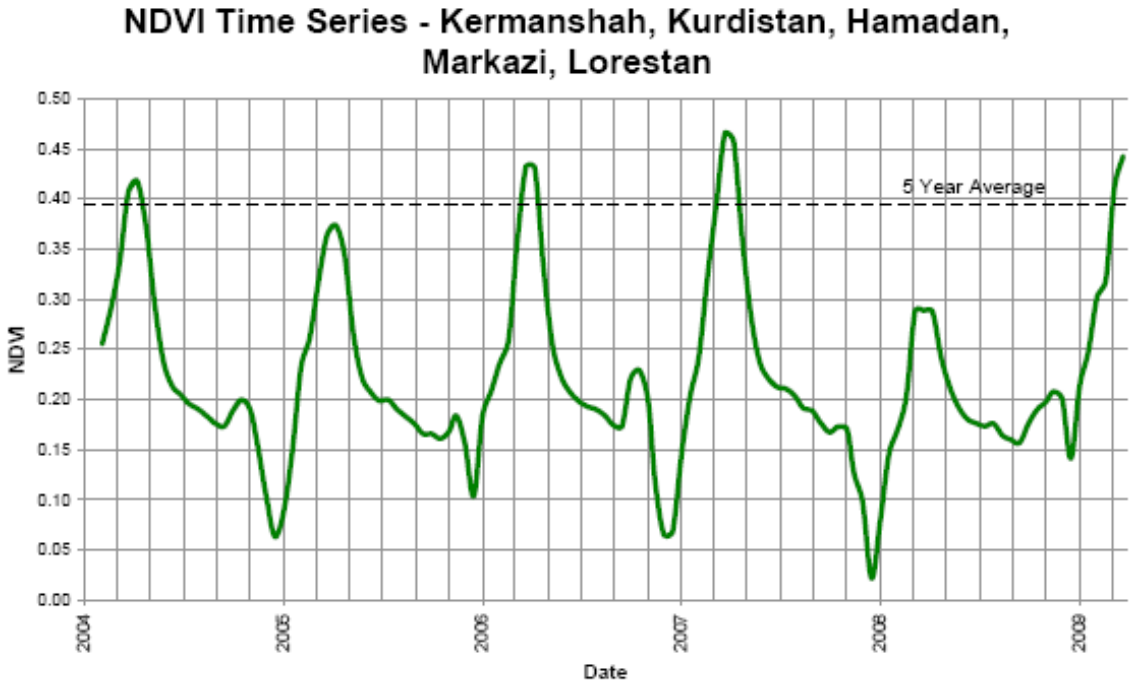


Figure 5. MODIS NDVI comparing vegetation abundance over agricultural lands to the 5-year average over grains areas in major northwest and northeast provinces



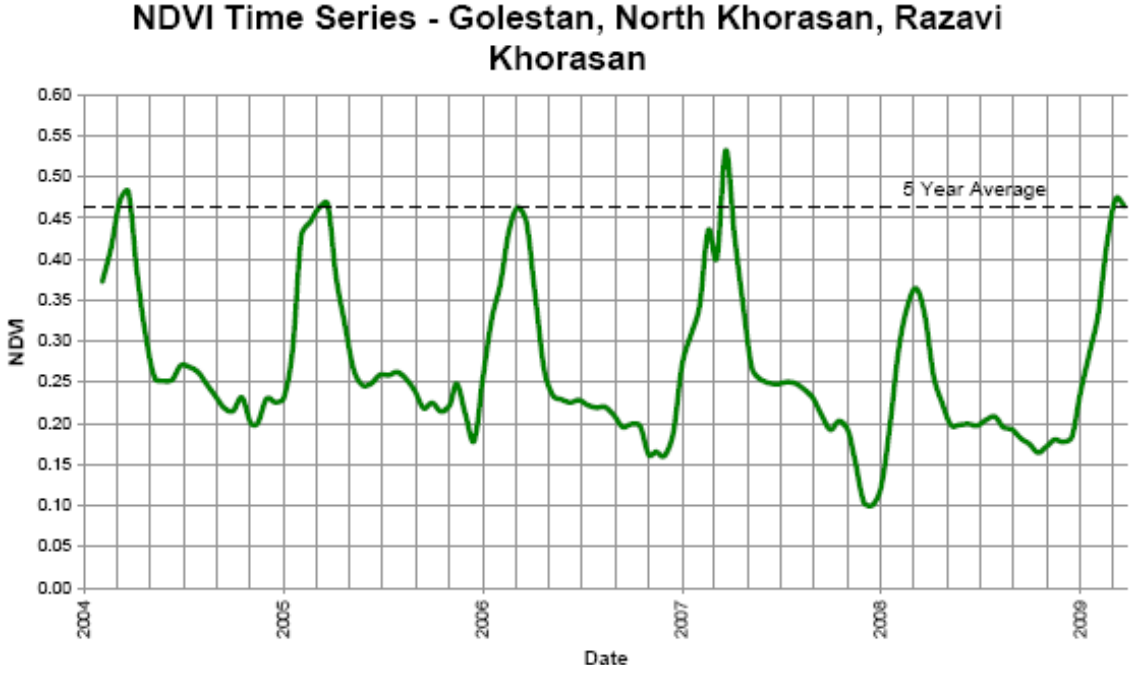


Figure 6. MODIS NDVI time series over grains areas in major northwest and northeast provinces where sustained seasonal rainfall allowed for normal to better than normal crop abundance.

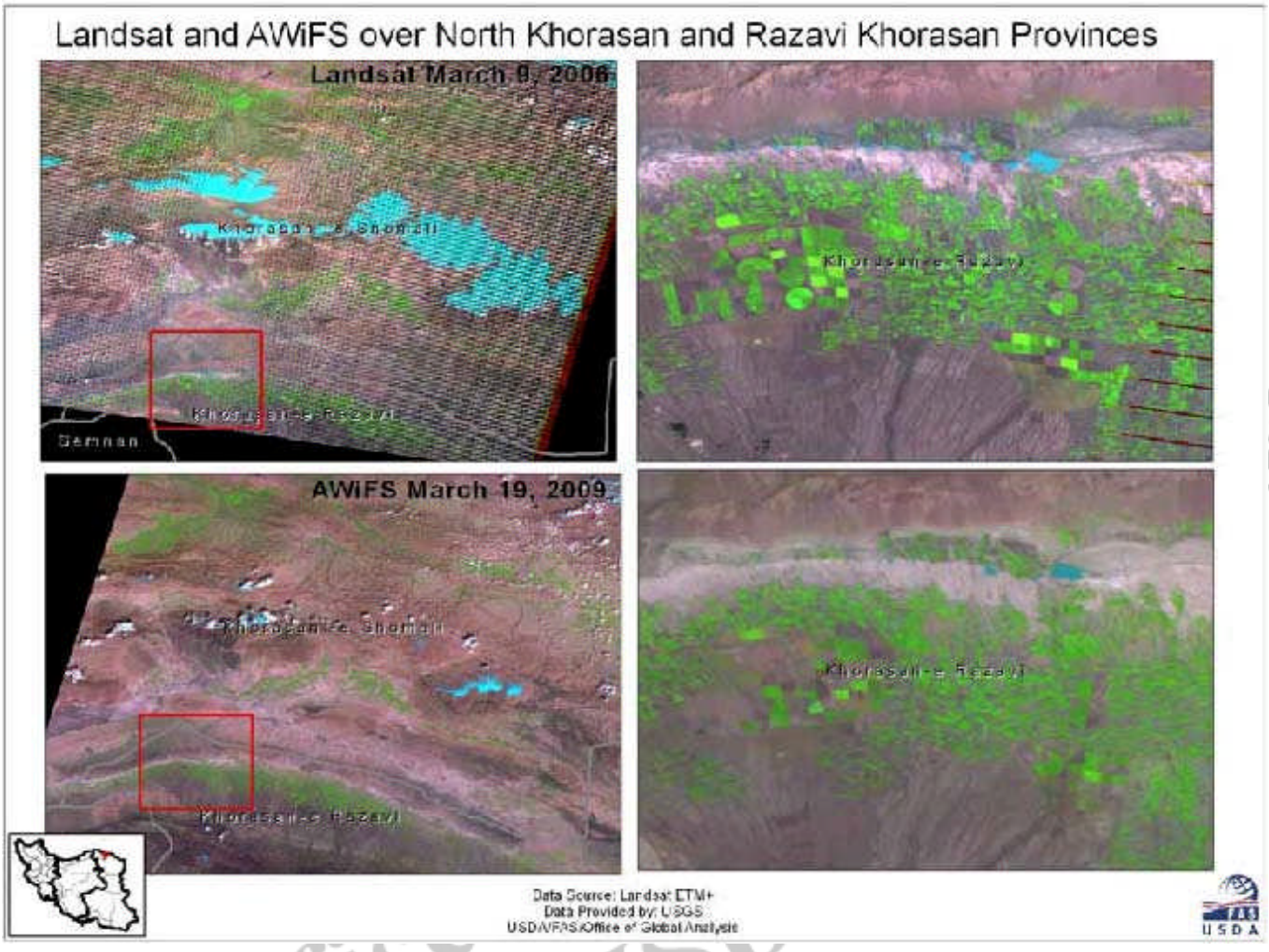


Figure 7. March imagery from 2006 and 2009 over North Khorasan and Razavi Khorasan show similarities in crop abundance and vigor indicating a return to normal levels of production.

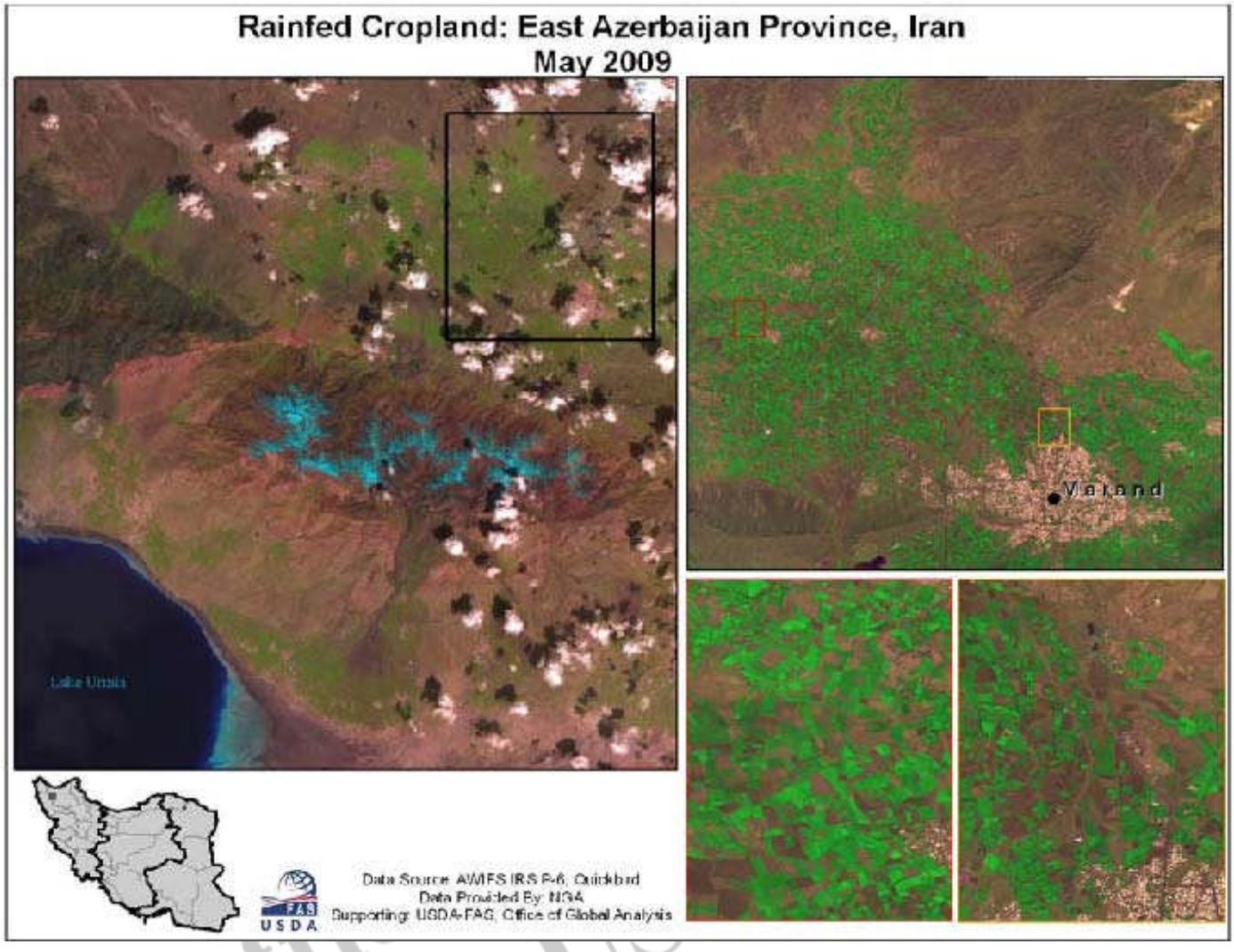


Figure 8. AWiFS and Quickbird imagery highlight healthy grains production in East Azerbaijan Province.

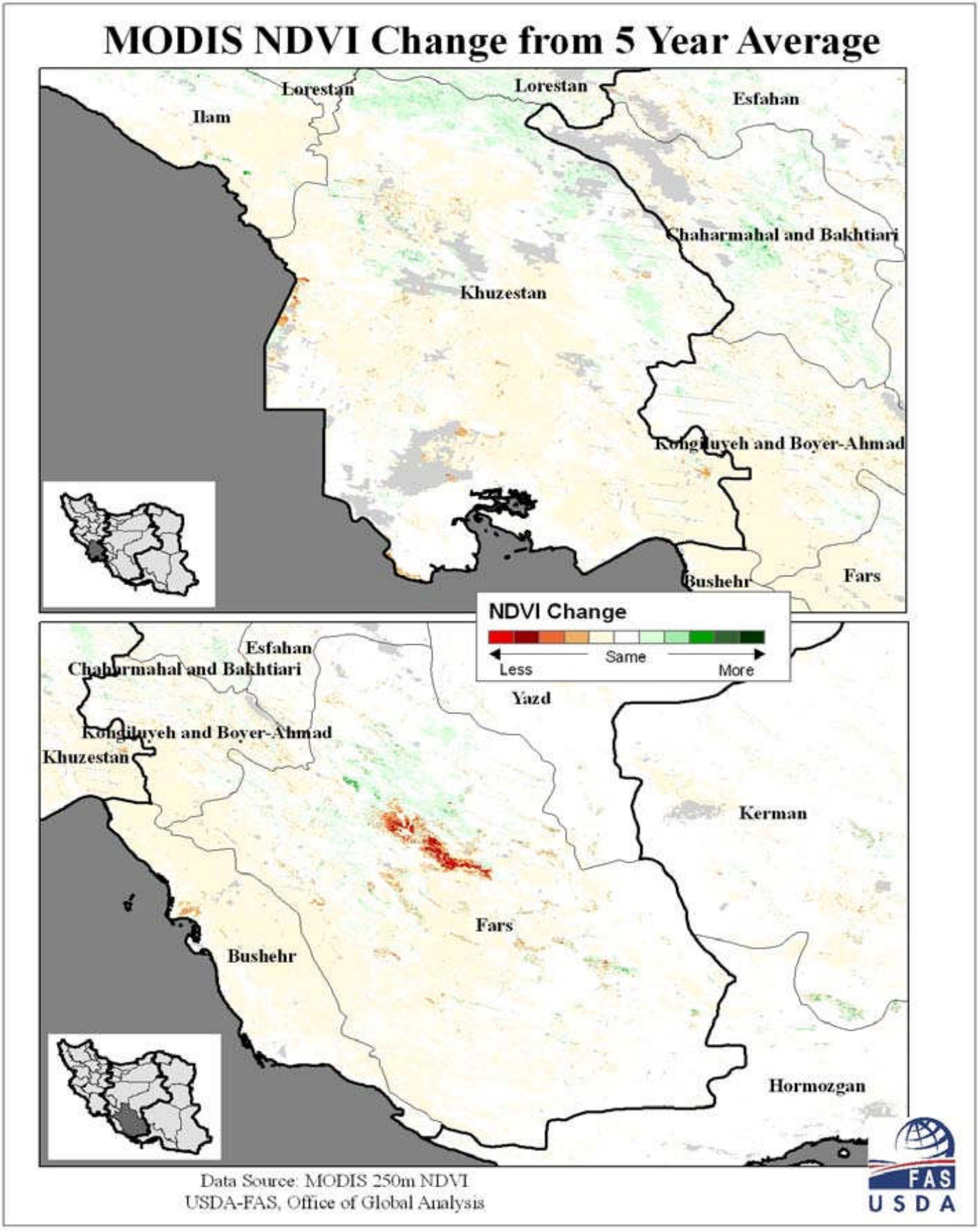
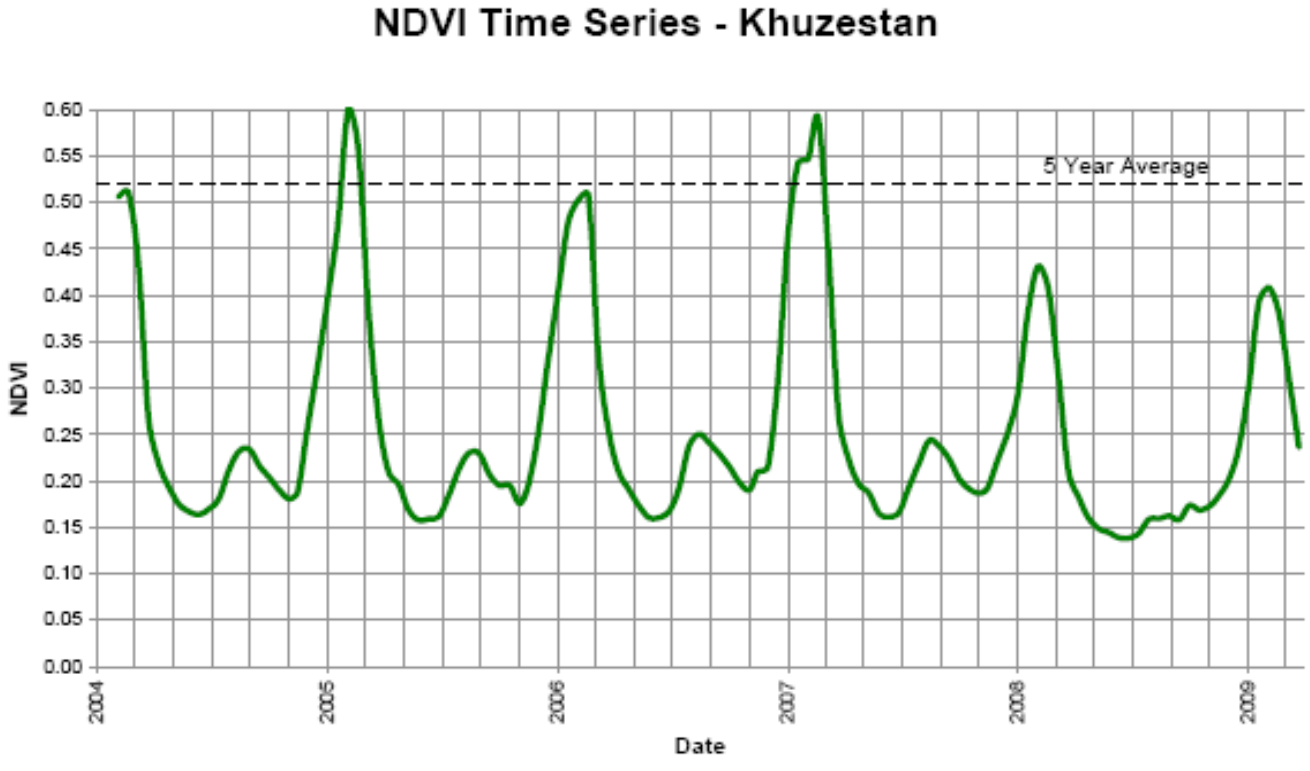


Figure 9. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous 5-year average over the major irrigated grains provinces of Khuzestan and Fars.



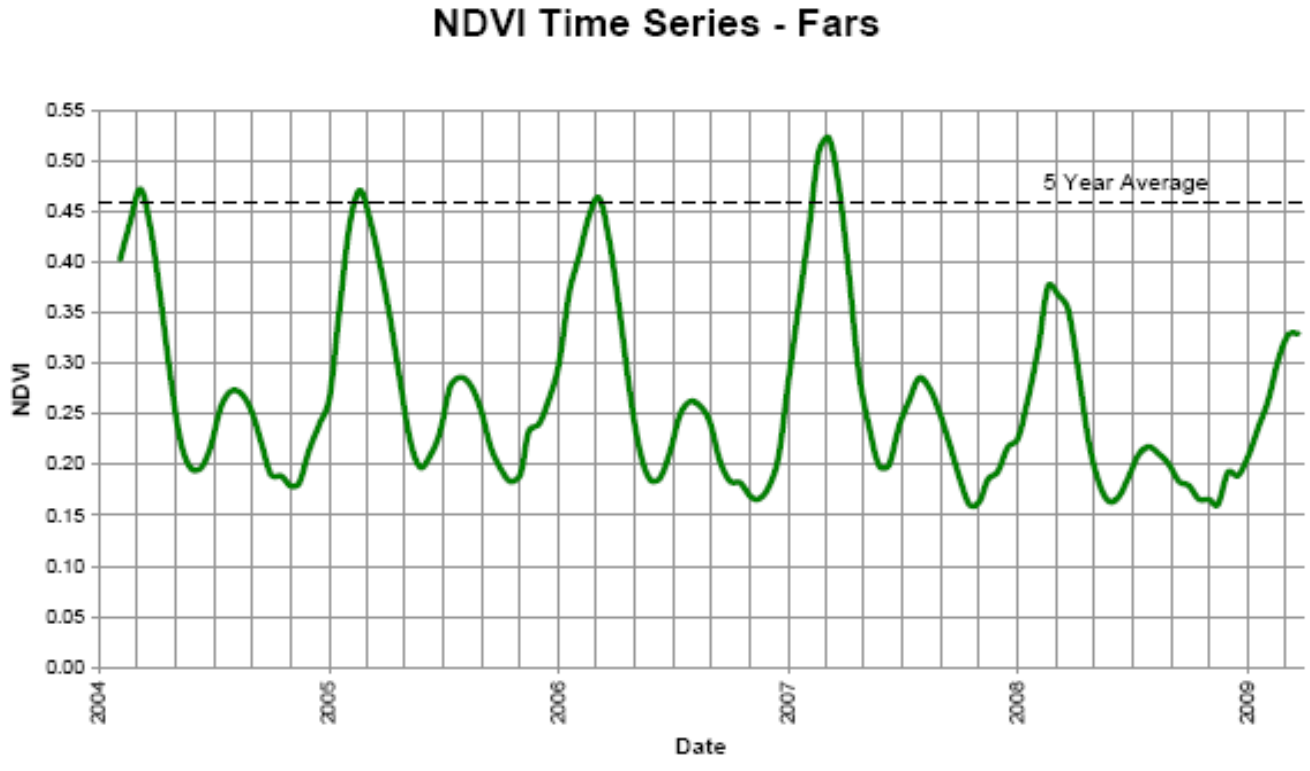


Figure 10. MODIS NDVI time series over grains over the major irrigated grains provinces of Khuzestan and Fars where persistent drought during the planting and growing seasons led to significant loss of crop area and yield. Agricultural conditions were worse than previous drought ravaged year (MY 2008/09).

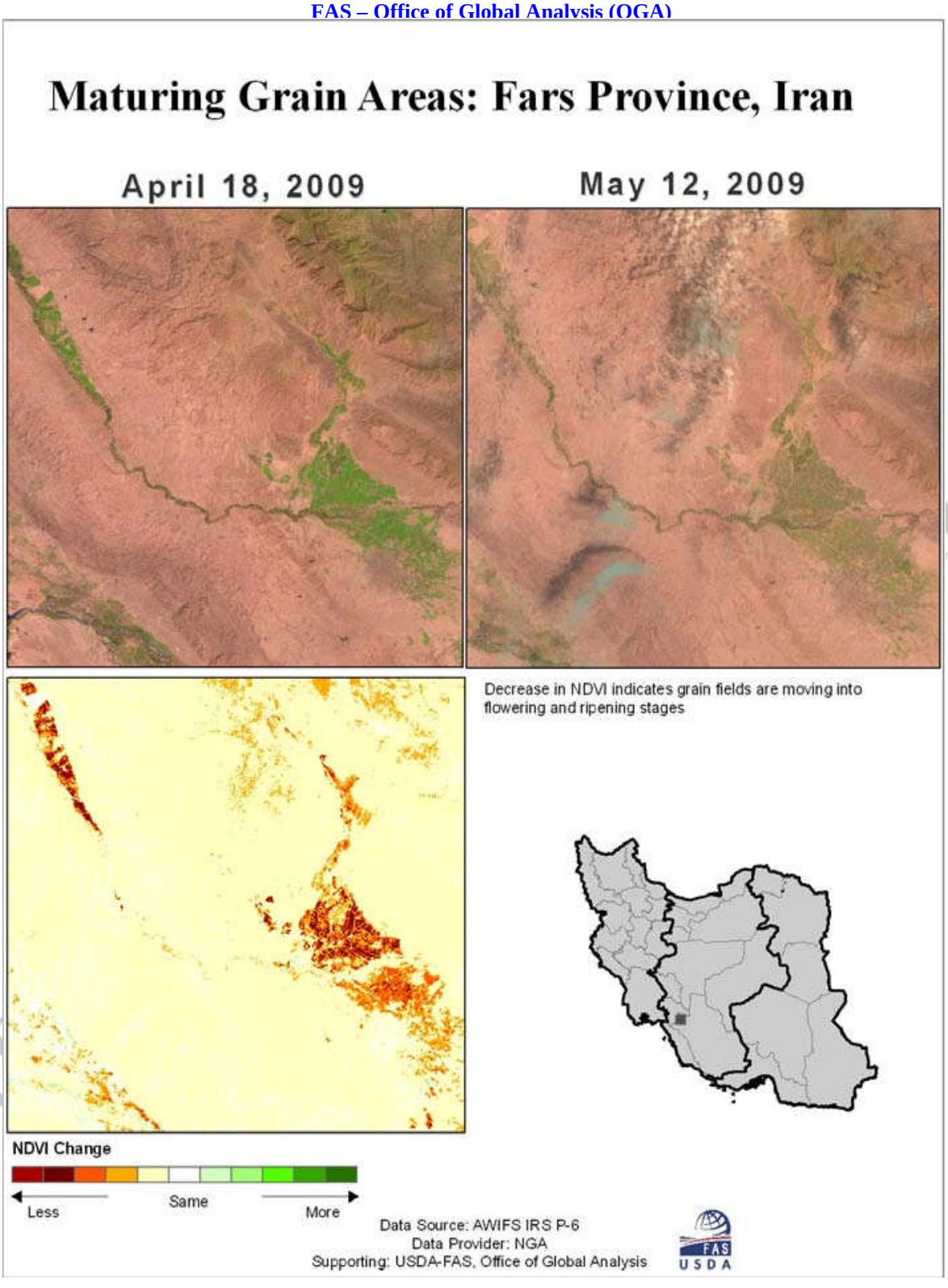


Figure 11. AWiFS imagery showing a recent decrease in NDVI over grain fields in Fars Province, Iran highlight to the change from green photosynthetic vegetation in the growing stages to decreasing and non-photosynthetic vegetation in the flowering and grain ripening stages of production.

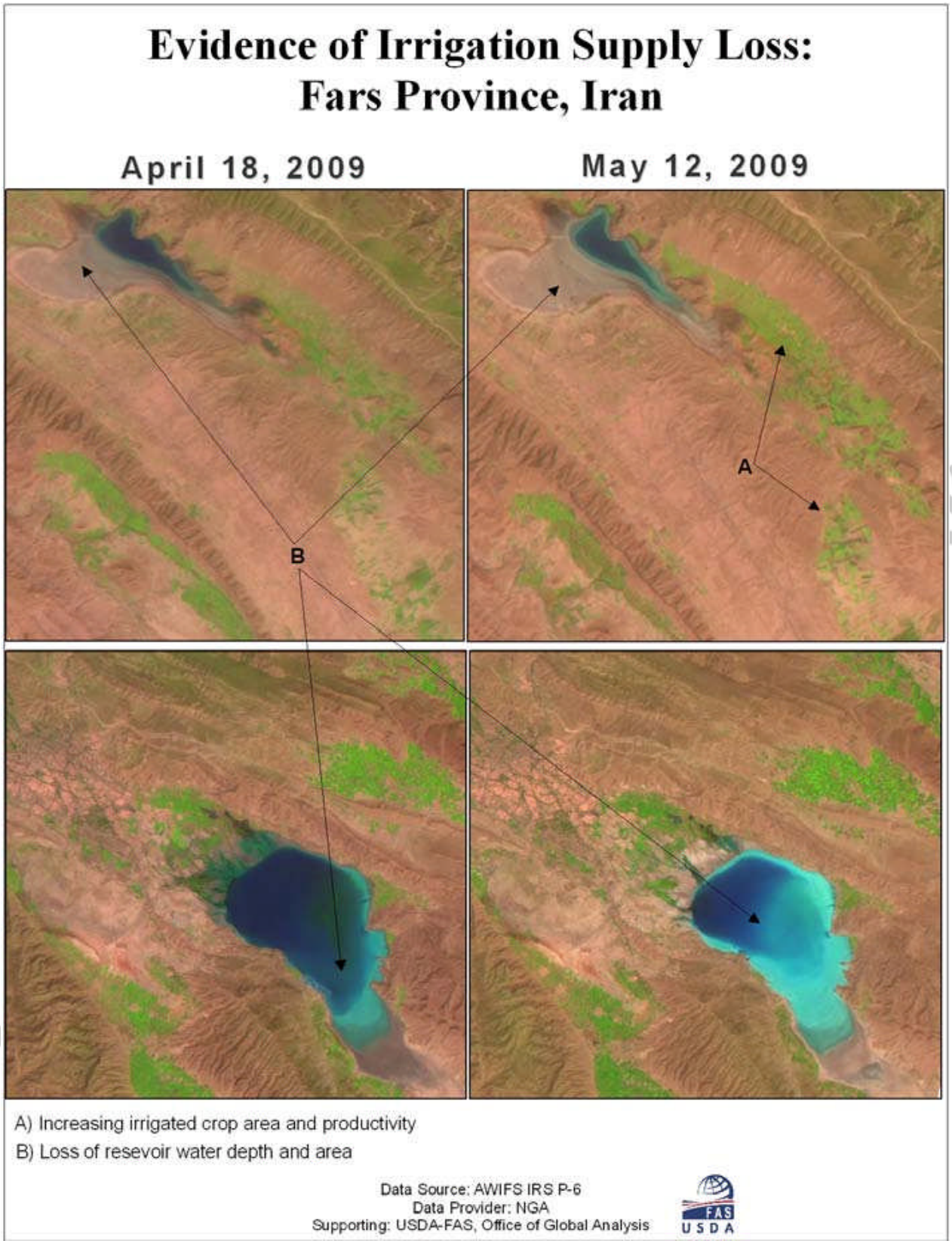


Figure 12. Evidence of decreasing reservoir levels as crop irrigation continues.

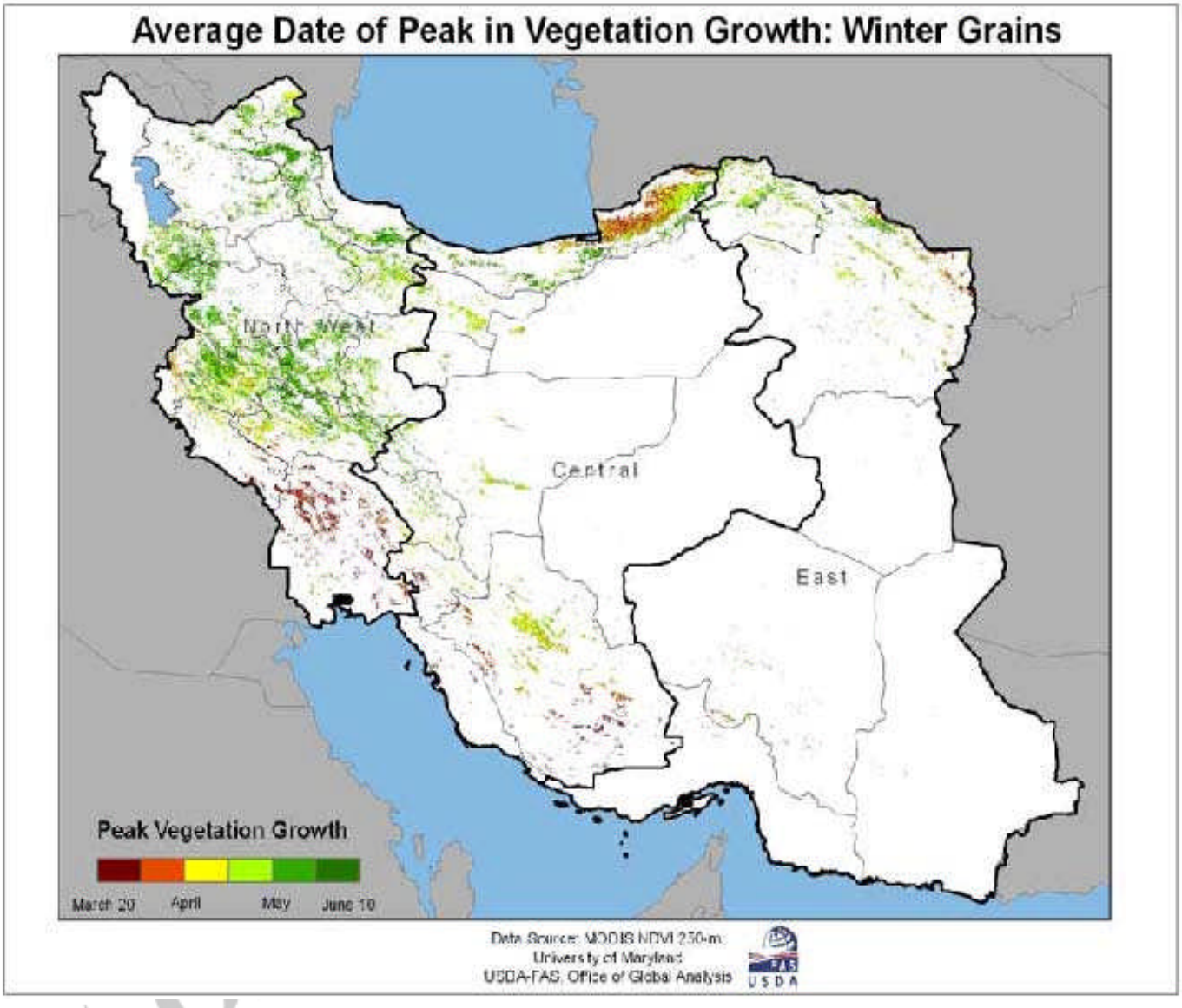


Figure 13. Typical dates at which winter grain crop growth peaks and the plans move into the flowering stage of the plant cycle. Regional climatic conditions are a major factor that dictates timing. Generated based on historical MODIS NDVI peak datesl.

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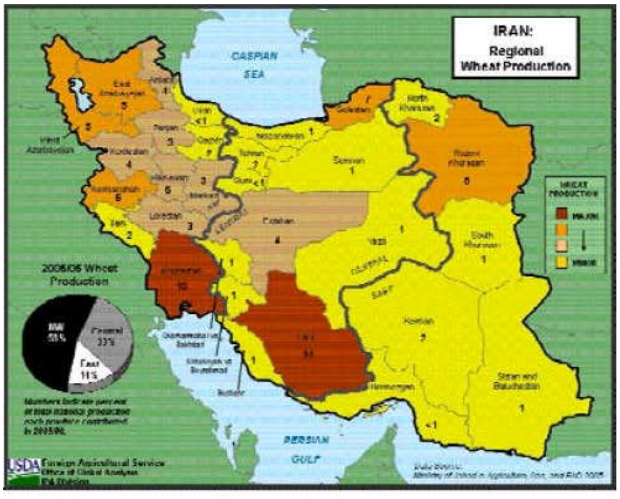
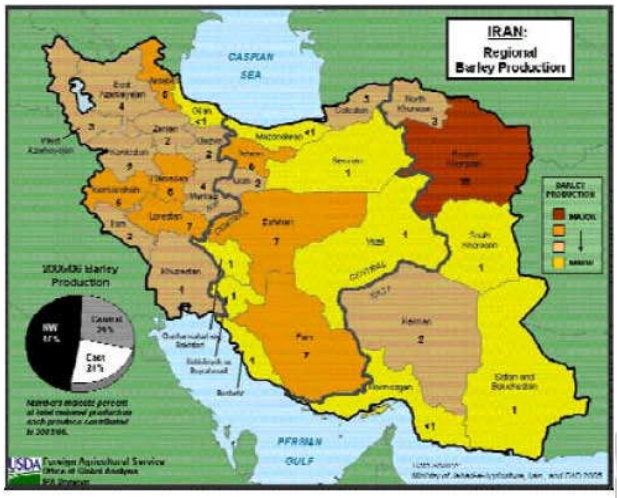
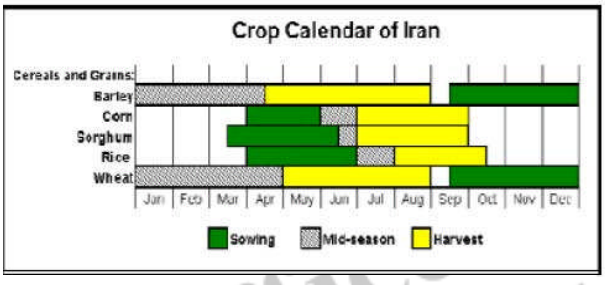
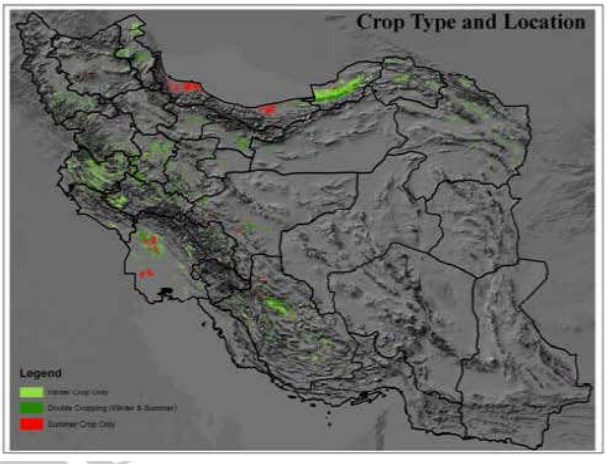
Appendix.









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